HIGHWAY WORKER SAFETY

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Division of Design – Landscape Architecture Program

Basic Planning Academy – May 2017

Workforce Development Branch
"Building Your Future"

OBJECTIVES

- Understand worker injury and fatality statistics and risk to highway workers.
- Identify planning and design decisions that can improve worker safety.
- Learn policies and procedures associated with worker safety.
- How you can effect change for worker safety.

HIGHWAY WORKER SAFETY

- ✓ Understanding the Issue
- ❑ Goals, Policy and Funding
- ❑ SAFER Solutions
- ❑ Tools to Use

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INJURY AND FATALITY STATISTICS

Employee Fatalities since 1974:

77% Maintenance Employees

64% Workers on Foot

Fatalities by Division:

77% Maintenance

15% Construction

4% Surveys

2% Administration

1% Traffic Engineering

1% Structures

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FATALITY COMMON DENOMINATORS

- Urban location
- High ADT
- Roadside work near shoulder
- Vehicle parked on shoulder
- Worker on foot

WORKER ON FOOT

Roadside Tasks Resources - Statewide

Work Task	PYs
Vegetation control	315
Remove debris and litter	226
Repair pull boxes	70
Clean/repair drain inlets	65
Irrigation repairs	57
Repair sign posts	42
Guardrail/barrier	41
Remove graffiti	28
TOTAL	844

DURATION + LOCATION + TASK = RISK

The risk of injury or fatality increases with the length of time and the location that workers are exposed to traffic without protection.

HIGHWAY WORKER SAFETY

- ❑ Understanding the Issue
- ✓ Goals, Policy and Funding
- ❑ SAFER Solutions
- ❑ Tools to Use

MISSION, VISION, GOALS, VALUES

Caltrans First Goal - Safety and Health

Provide a safe transportation system for workers and users, and promote health through active transportation and reduce pollution in communities.

DESIGN FOR ROADSIDE SAFETY

California Strategic Highway Safety Plan 2015 - 2019

The Strategic Highway Safety Plan (SHSP) is a statewide, coordinated safety plan that provides a comprehensive framework for reducing highway fatalities and severe injuries on all public roads.

- Reduce fatality rate
- Reduce injuries
- Toward Zero Fatalities

WORKER SAFETY IMPROVEMENTS

- ALL PROJECTS MUST ADDRESS WORKER SAFETY
- HOW DO WE REDUCE THE FREQUENCY AND DURATION OF WORKER EXPOSURE?
- SHOPP ROADSIDE SAFETY IMPROVEMENT FUNDING

Safety Reviews

"Safety concepts that are identified during these safety reviews which directly limit the exposure of employees … **shall be incorporated** …unless approved by the District Director."

PROJECTS MUST ADDRESS WORKER SAFETY

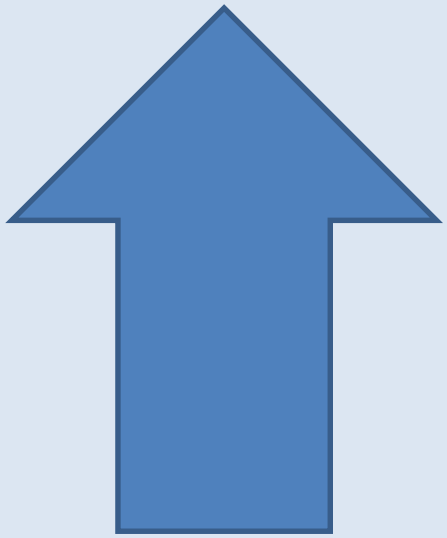
Project Development Team

A Maintenance representative must be assigned to all Project Development Teams.

SHOPP 235

Fiscal Year	Roadside Safety Improvements
08-09	$2.00
09-10	$1.94
10-11	$3.56
11-12	$2.40
12-13	$11.33
13-14	$12.85
14-15	$31.04
15-16	$36.60
Annual Average	$11.3M

FUNDING



HIGHWAY WORKER SAFETY

- ❑ Understanding the Issue
- ❑ Goals and Funding
- ✓ SAFER Solutions
- ❑ Tools to Use

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SAFER

- **S**ITE
- **A**CCESSIBLE
- **F**ACILITATE
- **E**LIMINATE
- **R**ELOCATE

DESIGN & PLANNING DECISIONS AFFECT MAINTENANCE

SITE

Locate features/facilities in safe locations

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HIGHWAY WORKER SAFETY

SITE

Locate features/facilities in safe locations

ACCESSIBLE

Provide safe access to roadside and highway features

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ACCESSIBLE

Provide safe access to roadside and highway features

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Provide safe access to roadside and highway features

ACCESSIBLE

Provide safe access to roadside and highway features

FACILITATE

FACILITATE

Facilitate Mechanical Activity / Understand Equipment

FACILITATE

Facilitate Mechanical Activity / Understand Equipment

FACILITATE

Facilitate Mechanical Activity / Understand Equipment

ELIMINATE

Design to eliminate the maintenance activity

ELIMINATE

Design to eliminate the maintenance activity

ELIMINATE

Design to eliminate the maintenance activity

ELIMINATE

Design to eliminate the maintenance activity

ELIMINATE

Design to eliminate the maintenance activity

ELIMINATE

Design to eliminate the maintenance activity

RELOCATE

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RELOCATE

Move facilities out of gore area and clear recovery zone

HIGHWAY WORKER SAFETY

- ❑ Understanding the Issue
- ❑ Goals, Policy and Funding
- ❑ SAFER Solutions
- ✓ Tools to Use

TOOLS YOU CAN USE

- Deputy Directive 103
- Policy (Caltrans Manuals)
- Memos and Tools
- SHOPP Asset Management

HIGHWAY DESIGN MANUAL

110.8 **Safety Reviews**

District Safety Review Committee

- Planning
- Design

*"Safety concepts that are identified during these safety reviews which directly limit the exposure of employees … **shall be incorporated** …unless deletion is approved by the District Director."*

PROJECT DEVELOPMENT PROCEDURES MANUAL

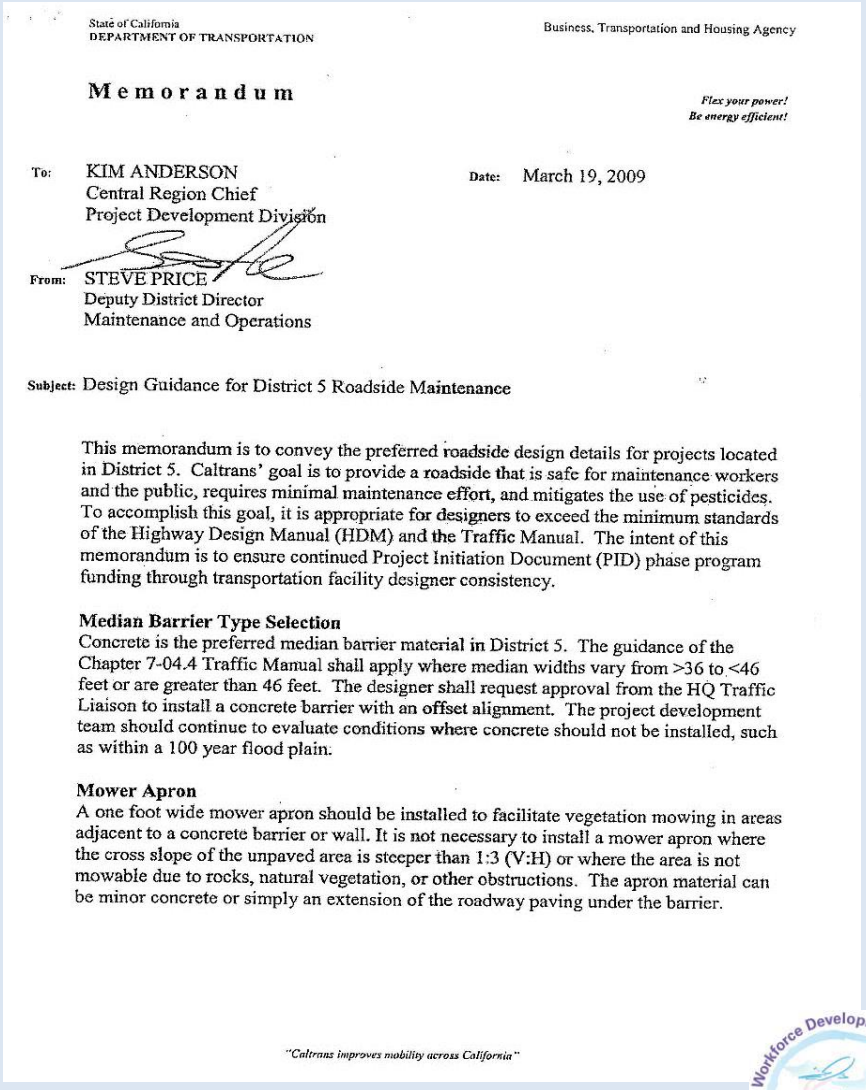
Chapter 3, Section 11 Maintenance

Project Development Team Member

"A maintenance representative must be assigned to all project development teams to ensure that maintenance issues and safety design are considered. Preferably, the representative should be the field person most familiar with the project site."

TOOLS AND EXAMPLES

- Plans, Specifications & Estimates
- HQ Memos
- Central Region Memo



State of California
DEPARTMENT OF TRANSPORTATION

Business, Transportation and Housing Agency

Memorandum

Flex your power!
Be energy efficient!

To: KIM ANDERSON
Central Region Chief
Project Development Division

Date: March 19, 2009

From: STEVE PRICE
Deputy District Director
Maintenance and Operations

Subject: Design Guidance for District 5 Roadside Maintenance

This memorandum is to convey the preferred roadside design details for projects located in District 5. Caltrans' goal is to provide a roadside that is safe for maintenance workers and the public, requires minimal maintenance effort, and mitigates the use of pesticides. To accomplish this goal, it is appropriate for designers to exceed the minimum standards of the Highway Design Manual (HDM) and the Traffic Manual. The intent of this memorandum is to ensure continued Project Initiation Document (PID) phase program funding through transportation facility designer consistency.

Median Barrier Type Selection
Concrete is the preferred median barrier material in District 5. The guidance of the Chapter 7-04.4 Traffic Manual shall apply where median widths vary from >36 to <46 feet or are greater than 46 feet. The designer shall request approval from the HQ Traffic Liaison to install a concrete barrier with an offset alignment. The project development team should continue to evaluate conditions where concrete should not be installed, such as within a 100 year flood plain.

Mower Apron
A one foot wide mower apron should be installed to facilitate vegetation mowing in areas adjacent to a concrete barrier or wall. It is not necessary to install a mower apron where the cross slope of the unpaved area is steeper than 1:3 (V:H) or where the area is not mowable due to rocks, natural vegetation, or other obstructions. The apron material can be minor concrete or simply an extension of the roadway paving under the barrier.

"Caltrans improves mobility across California"

PLANNING GUIDANCE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

PROJECT INITIATION FORM

DIVISION OF TRANSPORTATION PLANNING

DATE

SECTION 1: PROJECT INFORMATION

DIST EA | SHOPP ID | PPNO | FFS ID

District | County | ROUTE | PM BACK | PM FORWARD

PROJECT NICKNAME

LEGAL LOCATION DESCRIPTION

TYPE(S) OF WORK

Assignments

DISTRICT ASSIGN. | DES ASSIGN.

PROJECT MANAGER (PM) | PROJECT ENGINEER (PE)

SECTION 5: RESOURCE ESTIMATE FOR K-PHASE

Functions	PYs	Hours
Total District		
Total District w/ OFS		

SECTION 6: SIGNATURE BLOCK

PROJECT NOMINATION COORDINATOR

PROGRAM ADVISOR AND/OR PROJECT LEAD

DDD, Planning, Local Assistance & Sustainability

SECTION 2: PROJECT INFORMATION (PID)

SHOPP | PID CYCLE | SHOPP PROPOSED CYCLE

PID TYPE | 10 YEAR SHOPP PLAN

Long Lead | SB 1

SHOPP Objectives

ANCHOR ASSET | Stand Alone | Multi Objective/Asset

PECT 40.50.201.

PERF. MEAS. | UNIT | COST | $0

SATELLITE NEED(S)

PECT 40.50.	PERF. MEAS.	UNIT	COST (x1000)	COST ($)

TYPE(S) OF Non-SHOPP WORK

SECTION 3: PRELIMINARY PROJECT SCHEDULE

K-PHASE

0, 1 & 3 PHASES

Anticipated Environmental Determination/Document

CEQA | NEPA

Right of Way

RAILROAD | UTIL | ACQUISITION

SECTION 4: PRELIMINARY COST ESTIMATE

CAPITAL (x$1000) | ROADWAY | STRUCTURE | R/W

SUPPORT (x$1000) | TOTAL PROJ. COST $0

SECTION 7: ATTACHMENTS

TPSIS | LOCATION MAPS

EXEC. COOP | Save As

- Project Initiation Form
- Pre-PID
- Project Nomination

DRAFT

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ROADSIDE TOOLBOX

http://www.dot.ca.gov/design/lap/landscape-design/worker-safety/index.html

CALL TO ACTION

- Understand
- Communicate
- Act

OBJECTIVES

- Understand worker injury and fatality statistics and risk to highway workers.
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- How you can effect change for worker safety.

QUESTIONS?